

LESSON 12.1

Name _____

Notes

Date _____

Study Guide

For use with pages 583–586

GOAL Write variable expressions and equations.

Key words indicate addition, subtraction, multiplication, or division.

| Addition | Subtraction | Multiplication | Division |
|--------------|-------------------|----------------|-----------------|
| plus | minus | times | divided by |
| the sum of | the difference of | the product of | the quotient of |
| increased by | decreased by | multiplied by | |
| total | fewer than | of | |
| more than | less than | | |
| added to | subtracted from | | |

To translate a sentence into an equation, look for key words like *is* or *equals* to find the place for the equals sign.

EXAMPLE 1 Adding and Subtracting Expressions

Write the phrase as an expression. Let n represent the number.

| Phrase | Expression |
|----------------------------|------------|
| A number increased by 5 | $n + 5$ |
| Twelve fewer than a number | $n - 12$ |

Exercises for Example 1

Write the phrase as a variable expression.

- A number b plus 4 $b + 4$
- Six decreased by a number y $6 - y$
- The difference of a number p and 2 $p - 2$
- The total of 8 and a number t $8 + t$

EXAMPLE 2 Multiplying and Dividing Expressions

Write the phrase as an expression. Let h represent the number.

| Phrase | Expression |
|--------------------------------|-------------------------|
| 3 times a number | $3 \cdot h$, or $3h$ |
| The product of a number and 11 | $h \cdot 11$, or $11h$ |
| A number divided by 2 | $\frac{h}{2}$ |
| The quotient of 8 and a number | $\frac{8}{h}$ |

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Exercises for Example 2

Write the phrase as a variable expression.

5. 10 multiplied by a number d $10d$

6. The product of 13 and a number q $13q$

7. 4 divided by a number f $\frac{4}{f}$

8. The quotient of a number t and 5 $\frac{t}{5}$

EXAMPLE 3 Writing Simple Equations

Write the sentence as an equation.

Sentence

Equation

11 plus a number k is 15.

$$11 + k = 15$$

A number z divided by 3 is 6.

$$\frac{z}{3} = 6$$

Exercises for Example 3

Write the sentence as an equation.

9. The total of a number p and 5 is 12. $n + p = 12$

10. The quotient of 10 and a number d is 6. $\frac{10}{d} = 6$

EXAMPLE 4 Writing an Equation to Model a Situation

Tina has 16 cousins, which is seven more than Pedro has. Write an equation you could use to find n , the number of cousins that Pedro has.

Solution

Number of Pedro's cousins + 7 = Number of Tina's cousins

$$n + 7 = 16$$

Exercise for Example 4

11. After Chan spent \$11 for video rentals, he had \$15 in his wallet. Write an equation you could use to find y , the amount of money in Chan's wallet before he rented the videos.

$$y - \$11 = \$15$$